
भुना चना — विशिष्टि

Roasted Bengal Gram — Specification

ICS 67.060

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Foodgrains, Allied products and Other Agricultural Produce Sectional Committee had been approved by the Food and Agriculture Division Council.

Bengal gram is a major pulse crop in India. Roasted Bengal gram is dehusked, split and roasted gram. Roasting gives Bengal gram a rich and nutty flavour. It is one of the most popular snack items in India. Roasted Bengal gram is loaded with immense health benefitting properties. It is low in calories and a rich source of fiber and protein. This standard has been laid down to help in exercising proper quality control in processing of roasted Bengal gram of good quality under hygienic condition.

This standard is based on the Roasted Bengal Gram (split) Grading and Marking Rules, 2002.

In the formulation of this standard, due consideration has been given to the provisions of the *Food Safety and Standards Act*, 2006 and the Rules and Regulations framed thereunder and the *Legal Metrology (Packaged Commodities) Rules*, 2011. However, this standard is subject to the restrictions imposed under these, wherever applicable.

The composition of the Committee responsible for formulation of the standard is listed in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ROASTED BENGAL GRAM — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for roasted Bengal gram (split) (*Cicer arietinum* Linn).

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards.

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Broken — Pieces below 3/4 and above 1/4 of the full size of splits.

3.2 Damaged Grains — Bengal gram (roasted) whole or broken, obviously or internally damaged due to heat, microbe, moisture or weather or other causes.

3.3 Foreign Matter — Any extraneous matter other than roasted Bengal Gram comprising of :

- a) Inorganic matter includes glass and metallic pieces, dust, sand, gravel, stones, dirt, pebbles, lumps or earth, clay, mud and animal filth etc; and
- b) Organic matter consisting of husk, chaff, straw, weed seeds and other inedible grains etc.

3.4 Fragments — Includes pieces below one-fourth of the full size of splits.

3.5 Other Edible Grains — Any edible grains (including oil seeds) other than Bengal Gram.

3.6 Partially husked Grains — Grains/or split that are partially husked.

3.7 Poisonous, Toxic and/or Harmful Seeds — Poisonous/toxic seeds like *khesari dal* (*Lathyrus sativus*), *Dhatura* (*D. fastuosa* Linn and *D. stramonium* Linn), Corncockle (*Agrostemma githago*

L., *Machai Lallium remulenum* Linn) *Akra* (*Vicia species*).

3.8 Weevilled Grains — Kernels that are partially or wholly bored by insects injurious to grains but do not include germ eaten grains and egg spotted grains.

4 REQUIREMENTS

4.1 Description

Roasted Bengal gram shall:

- a) be the product derived from mature, dried, sound and wholesome grains of Bengal Gram botanically known as *Cicer arietinum* Linn.;
- b) be properly roasted in sand or with any other process (without using any oil), split and husked;
- c) be reasonably uniform in shape, size, colour and characteristics of the product;
- d) be in sound merchantable condition and fit for human consumption in all respects;
- e) have its natural odour and pleasant taste and free from objectionable odour; and
- f) be free from admixture/contamination of any foreign matter including unwholesome substances, and poisonous/toxic seeds like *Khesari dal*, *Dhatura*, *Akra*, obnoxious smell, rodent contamination and any type of added colouring matter.

4.2 Roasted Bengal gram shall be of two grades namely, special and standard, conforming to the requirements specified in Table 1.

4.3 The metal contaminants and other toxic substances, if any, in the product shall not exceed the limits specified in Table 2.

4.4 The pesticide residues, if any, in the product shall not exceed the limits as prescribed in the *Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011*.

4.5 The product shall be manufactured in premises using equipment maintained under hygienic conditions (see IS 2491).

Table 1 Requirements for Roasted Bengal Gram (Split)
(Clause 4.2 and 8.1)

Sl No.	Characteristic	Requirement		Method of Test, Ref to
		Special	Standard	
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, <i>Max</i>	6.0	7.0	IS 4333 (Part 2)
ii)	Foreign matter ¹⁾			Annex B
	Inorganic, percent by mass, <i>Max</i>	0.10	0.25	
	Organic, percent by mass, <i>Max</i>	0.10	0.50	
iii)	Other edible grains, percent by mass, <i>Max</i>	0.50	0.75	IS 4333 (Part 1)
iv)	Damaged and discoloured grains, percent by mass, <i>Max</i> ²⁾	1.0	2.0	IS 4333 (Part 1)
v)	Weevilled grains, percent by mass, <i>Max</i>	0.5	1.0	IS 4333 (Part 1)
vi)	Broken and fragment pieces, percent by mass, <i>Max</i>	3.0	5.0	IS 4333 (Part 1)
vii)	Partially husked grains, percent by mass, <i>Max</i>	0.5	1.0	IS 4333 (Part 1)

NOTES

1 In foreign matter, the impurities of animal origin shall not be more than 0.10 percent by weight.

2 Ergot affected grains shall not exceed 0.05 percent by weight in damaged grains.

Table 2 Limits of Metal Contaminants and Other Toxic Substances
(Clause 4.3 and 8.1)

Sl No.	Parameter	Specification	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Lead, mg/kg, <i>Max</i>	0.2	IS 12074
ii)	Cadmium, mg/kg, <i>Max</i>	0.1	IS of IS 1699
iii)	Aflatoxin B ₁ , µg/kg, <i>Max</i>	10.0	IS 16287
iv)	Total aflatoxin, µg/kg, <i>Max</i>	15.0	IS 16287

5 PACKING

Roasted Bengal gram (split) shall be packed in new, clean, sound, and dry jute bags (see IS 16372), cloth bags, laminated polyethylene, polypropylene, high density polyethylene bags, pouches or any other packing material of food grade, which shall be free from insect infestation, fungus contamination, deleterious substances and undesirable or obnoxious smell. Each package shall contain roasted Bengal gram (split) of the same grade designation. Each package shall be securely closed and sealed. Suitable number of consumer packs containing graded material of the same grade designation and from the same lot/batch may be packed in a master container such as wooden cases, card board cartons etc.

6 MARKING

6.1 The ink used for marking shall be of such quality which may not contaminate the product. Each container shall be indelibly marked as to give the following information :

- a) Grade designation;
- b) Name and address of the packer;
- c) Place of packing;
- d) Date of packing;
- e) Lot/batch number;
- f) Net quantity;
- g) Best before.....month.....year; and

- j) Any other information required under the *Legal Metrology (Packaged Commodities) Rules, 2011* and the *Food Safety and Standards (Labelling and Display) Regulations, 2020*.

6.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

7 SAMPLING

Representative samples of the material for ascertaining conformity to the requirements of this standard shall be drawn according to the method given in IS 14818.

8 TESTS

8.1 All the tests shall be carried out as specified in col 5 of Table 1 and col 4 of Table 2.

8.2 Quality of Reagents

Unless specified otherwise, pure chemicals shall be employed in tests and distilled water (see IS 1070) shall be used where the use of water as reagent is intended.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

ANNEX A
(Clause 2)

LIST OF REFERRED STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
IS No.460 (Part 1) : 2020	Test sieves: Part 1 Wire cloth test sieves (<i>fourth revision</i>)	IS No.12074 : 1987	Method for determination of lead by atomic absorption spectrophotometer
IS No.1070 : 1992	Reagent grade water — Specification (<i>third revision</i>)	IS No.14818 : 2017/ISO 24333 : 2009	Cereal and cereal products — Sampling (<i>first revision</i>)
IS No.1699 : 1995	Methods of sampling and test for food colours (<i>second revision</i>)	IS No.16287 : 2015/ISO 16050 : 2003	Foodstuffs — Determination of aflatoxin B ₁ , and the total content of aflatoxins B ₁ , B ₂ , G ₁ and G ₂ in cereals, nuts and derived products — High performance liquid chromatographic method
IS No.2491 : 2013	Food hygiene — General principles — Code of practice (<i>third revision</i>)	IS 16372 : 2015	Textiles — Jute bags for packing up to 30 kg foodgrains — Specification
IS No.4333 (Part 1) : 2018	Methods of analysis for foodgrains Refractions (<i>third revision</i>)		
(Part 2) : 2017/ISO 712 : 2009	Determination of moisture content (<i>second revision</i>)		

ANNEX B

[Table 1, Sl No. (ii)]

DETERMINATION OF FOREIGN MATTER (ORGANIC AND INORGANIC)

A-1 APPARATUS

A-1.1 Physical Balance, 5 mg readability.

A-1.2 Sieves — The following four IS Sieves of round holes shall be used [see IS 460 (Part 1)]:

	<i>IS Sieve</i>
Top	4.00 mm
Second from top	3.35 mm
Third from top	1.70 mm
Fourth from top	1.00 mm

A-1.2.1 A solid bottom pan shall be used at the bottom.

A-2 PROCEDURE

For the purpose of reducing the quantity of the test sample, spread the entire sample in a tray, divide it into four equal portions, collect the two opposite portions and repeat this process till the required quantity of sample is obtained.

Weigh about 250 g of the test sample and record the prescribed mass. Pour the quantity over the set of

sieves previously arranged in a way so that the sieve with the largest perforations comes at the top and those with smaller perforations are placed in order of their sizes. Then, agitate the sample thoroughly to strain out the foreign matter at various levels. As a result of this straining, other foodgrains and foreign matter like bolder pieces of clay, chaff etc., would remain on the first three sieves according to their sizes. The topmost sieve would contain bold grains, big pieces of clay and other big sized foreign matter, while the lower sieves would contain smaller foreign matter. Separate the sieves after straining and pick up all foreign matter by hand or forceps from each of them and add it to the foreign matter collected on the bottom pan.

Put the entire foreign matter collected as above into a beaker containing carbon tetrachloride. The inorganic extraneous matter will settle down which can be separated from the organic foreign matter. Remove the organic foreign matter, dry and weigh. Calculate the percentage. Remaining amount shall be the inorganic foreign matter.

ANNEX C
(Foreword)

COMMITTEE COMPOSITION

Foodgrains, Allied Products and Other Agricultural Produce Sectional Committee, FAD 16

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